AMENDMENT TO THE CLAIMS

The following is a detailed listing of all claims that are, or were, pending in the Application.

1. (Currently amended) A band-gap reference circuit, comprising:

a core reference circuit, having a core output terminal;

a voltage amplifier, having a single ended input stage, coupled to the core output terminal and having a voltage amplifier terminal;

a transconductance amplifier, having a single ended input stage, coupled to the voltage amplifier terminal; and

a shared voltage rail, coupled to the core reference circuit and the transconductance amplifier, wherein the shared voltage rail is an output voltage terminal.

2. (Original) The reference circuit of claim 1, the core reference circuit comprising:

a first transistor, having a first collector coupled to the voltage rail, a first emitter coupled to the ground, and a first base;

a second transistor, having a second collector coupled to the voltage rail, a second emitter coupled to the ground, and a second base, coupled to the first base; and

a first resistor, coupled between the second collector and the voltage rail, wherein

the core output terminal is coupled between the second collector and the first resistor; and

said couplings are configured as one of a direct coupling and a coupling across a resistor.

3. (Original) The reference circuit of claim 2, wherein at least one of the first transistor and the second transistor comprises a plurality of transistors.

4. (Original) The reference circuit of claim 1, wherein:

the voltage amplifier comprises as input stage, comprising a third transistor, the third transistor comprising:

a third emitter coupled to the ground; and

a third base, coupled to core output terminal.

5. (Original) The reference circuit of claim 4, wherein the reference circuit is operable to generate a voltage-rail voltage essentially independent of the temperature.

6. (Original) The reference circuit of claim 1, wherein the voltage amplifier comprises more than one stages.

7. (Original) The reference circuit of claim 1, wherein the transconductance amplifier comprises:

a first stage, comprising a fourth transistor, the fourth transistor comprising a fourth emitter, coupled to the ground, a fourth base, coupled to the voltage amplifier terminal, and a fourth collector, coupled to the voltage rail, wherein the coupling of the collector is one of a direct coupling and a coupling across a resistor.

8. (Original) The reference circuit of claim 1, wherein the transconductance amplifier comprises more than one stages.

9. (Original) The reference circuit of claim 1, wherein the reference circuit is powered by a voltage source and a current source, coupled in series with the voltage source, wherein the serially coupled voltage source and current source are coupled between the ground and the voltage rail.

10. (Original) The reference circuit of claim 1, comprising an output terminal coupled to the voltage rail.

11. (Original) The reference circuit of claim 1, wherein the reference circuit comprises transistors selected from the group on npn bipolar transistors, pnp bipolar transistors, NMOS, PMOS, CMOS, and BiCMOS transistors.

12. (Original) The reference circuit of claim 1, wherein the voltage amplifier and the transconductance amplifier comprise bipolar transistors as first stages, thereby keeping the noise of the reference circuit below a predetermined level.

13. (Original) The reference circuit of claim 1, operable at a supply voltage in the range of about 0.6 V to about 3V.

14. (Original) The reference circuit of claim 1, operable at a supply voltage in the range of about 1.0 V to about 1.5V.

15. (Original) The reference circuit of claim 1, operable at a supply voltage above a band gap voltage by an amount in the range of about 0V to about 0.5V.

16. (Original) The reference circuit of claim 1, operable with a ripple rejection ratio in the range of about 50 dB to about 120 dB.

17. (Original) The reference circuit of claim 1, wherein a ripple rejection ratio is essentially determined by a product of a transconductance of the transconductance amplifier and a voltage gain of the voltage amplifier.

18. (Original) The reference circuit of claim 1, wherein the transconductance amplifier introduces a negative feedback to the reference circuit and the voltage amplifier introduces a positive feedback to the reference circuit, and the magnitude of the negative feedback is bigger than the magnitude of the positive fedback.

19. (Original) The reference circuit of claim 1, wherein the reference circuit does not contain a start-up circuit.

20. (Original) The reference circuit of claim 1, wherein the reference circuit does not contain differential amplifiers.

21. (Original) The reference circuit of claim 1, wherein the spread of the reference circuit is below a predetermined value, wherein the spread comprises the spread of the parameters of similarly manufactured reference circuits.

22. (Currently amended) The method of providing a band-gap voltage with a high ripple rejection ratio, the method comprising:

providing a core reference circuit, having a core output terminal;

providing a voltage amplifier, having a single ended input stage, coupled to the core output terminal and having a voltage amplifier terminal;

providing a transconductance amplifier, having a single ended input stage, coupled to the voltage amplifier terminal;

providing a shared voltage rail, coupled to the core reference circuit and the transconductance amplifier, wherein the shared voltage rail is an output voltage terminal; and

selecting a transconductance of the transconductance amplifier and a voltage gain of the voltage amplifier so that their product generates a band-gap voltage with a ripple rejection ratio in the shared voltage rail above a predetermined value.

23. (Original) The method of claim 22, wherein the predetermined value is in the range of about 50 dB to about 120dB.

24. (Original) The method of providing a band-gap voltage with a low supply voltage, the method comprising:

providing a core reference circuit, having a core output terminal;

providing a voltage amplifier, having a single ended input stage, coupled to the core output terminal and having a voltage amplifier terminal;

providing a transconductance amplifier, having a single ended input stage, coupled to the voltage amplifier terminal;

providing a shared voltage rail, coupled to the core reference circuit and the transconductance amplifier, wherein the shared voltage rail is an output voltage terminal; and

selecting the parameters of the components of the core reference circuit, the voltage amplifier and the transconductance amplifier so that the reference circuit and the amplifiers can be operated at a supply voltage in the range of about 0.6V to about 3V.

25. (Original) The method of claim 24, wherein the minimum supply voltage is in the range of about 1.0V to about 2V.

26. (New) The reference circuit of claim 1, wherein

the voltage amplifier is coupled to the shared voltage rail.